

REMARKS

This Application has been carefully reviewed in light of the Office Action mailed November 3, 2006. Claims 1-46 were pending in the Application. In the Office Action, Claims 1-46 were rejected. In order to expedite prosecution of this Application, Applicants amend Claims 1, 11, 21, 31, 32, 33, 37, 41, 45 and 46. Thus, Claims 1-46 remain pending in the Application. Applicants respectfully request reconsideration and favorable action in this case.

In the Office Action, the following actions were taken or matters were raised:

SECTION 101 REJECTIONS

Claims 1, 2-10, 12-20, 21, 22-30, 31, 32, 33, 34-36, 38-40, 41 and 45 46 was rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Applicants respectfully traverse these rejections.

The Examiner appears to indicate that independent Claims 1 and 21 are directed toward non-statutory subject matter because Claim 1 purportedly recites "nothing more than a judicial exception of mathematical abstraction, involving no physical transformation and no more than the results of mathematical transformation" (Office Action, page 2) and Claim 21 purportedly "involves no physical transformation and asserts not more than the results of mathematical operations." (Office action, page 4). Applicants respectfully disagree. When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. M.P.E.P. § 2106(IV)(B)(1). Applicants submit that independent Claims 1 and 21, as amended, recite functional descriptive material. For example, independent Claims 1 and 21, as amended, recites at least recovering "the imposed correlithm object in accordance with the comparison to impose at least one correlithm object token in a shared resource" (emphasis added).

The Examiner also appears to indicate that independent Claim 11 is directed toward non-statutory subject matter. The examiner states that "two components and their purposes are disclosed. Lacking function description language, the claim is non-statutory under 35 U.S.C. 101." (Office Action, page 3). Applicants respectfully disagree. Independent Claim 11, as amended, recites "a recoverer . . . operable to . . . compare an imposed correlithm object . . . and recover the imposed correlithm object . . . to impose at least one correlithm object token in a shared resource." (emphasis added). Applicants respectfully submit that Claim 11, as amended, is directed to statutory subject matter.

The Examiner also appears to indicate that independent Claim 31 is directed toward non-statutory because "no data structure is claimed and no functional program is disclosed. Lacking functional description language, the claim only recites the § 101 judicial exceptions of mathematical abstraction and/or algorithm." (Office action, page 5). Applicants respectfully disagree. Independent Claim 31 recites "means for recovering the imposed correlithm object in accordance with the comparison to impose at least one correlithm object token in a shared resource." Applicants respectfully submit that Claim 31, as amended, is directed to statutory subject matter.

The Examiner also appears to indicate that independent Claims 32, 33, 41, 45 and 46 are directed toward non-statutory subject matter because the Claims 32 recites "no more than the §101 judicial exception of an algorithm" and disclose no physical transformation or useful, concrete, and tangible result." (Office Action, pages 6-7). Furthermore, the Examiner also appears to indicate that independent Claim 37 is directed toward non-statutory subject matter because "no physical transformation in the real world and no product of useful, concrete and tangible results is possible." (Office Action, page 7). Applicants respectfully submit that Claims 32, 33, 41, 45 and 46, as amended, are directed statutory subject matter.

Claims 2-10, 12-20, 22-30, 34-36, 38-40, and 42-44 depend respectively from independent Claims 1, 11, 21, 31, 32, 33, 37, 41, 45 and 46. For at least the reasons discussed above, Claims 1, 11, 21, 31, 32, 33, 37, 41, 45 and 46 are in condition for

allowance and, therefore, Claims 2-10, 12-20, 22-30, 34-36, 38-40, and 42-44 that depend respectively therefrom are also in condition for allowance. Accordingly, Applicants respectfully requests that the rejection of Claims 2-10, 12-20, 22-30, 34-36, 38-40, and 42-44 be withdrawn.

SECTION 102 REJECTIONS

Claims 1-3, 5, 7-11, 14, 15, 17, 21-23, 25, 27, 28 and 31 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,515,477 issued to Sutherland (hereinafter "*Sutherland*"). Applicants respectfully traverse this rejection.

Under 35 U.S.C. § 102, a claim is anticipated only if each and every element as set forth in the claim is found in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051 (Fed. Cir. 1987); M.P.E.P. § 2131. In addition, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claims" and "[t]he elements must be arranged as required by the claim." *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989); *In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990); M.P.E.P. § 2131.

Of the rejected claims, Claims 1, 11, 21 and 31 are independent. Independent Claim 1 recites "establishing a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space", "imposing the plurality correlithm objects on the space to yield a combined point", "comparing an imposed correlithm object to the combined point" and "recovering the imposed correlithm object in accordance with the comparison to impose at least one CO token in a shared resource" (emphasis added). Applicants respectfully submit that *Sutherland* does not disclose or even suggest each and every limitation recited by Claim 1. For example, in the Office Action, the Examiner appears to correlate *Sutherland's* recitation of enfolding into the correlation set via a complex vector addition to be "imposing" as recited by independent Claim 1. Applicants respectfully disagree. Nowhere does *Sutherland* disclose "imposing the plurality correlithm objects on the

space to yield a combined point" as recited by independent Claim 1. Therefore, for at least these reasons, Applicants submit that *Sutherland* does not anticipate independent Claim 1.

Independent Claim 11 recites "an overlap generator operable to: establish a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space; and impose the plurality correlithm objects on the space to yield a combined point; and "a recoverer coupled to the overlap generator and operable to: compare an imposed correlithm object to the combined point; and recover the imposed correlithm object in accordance with the comparison to impose at least one CO token in a shared resource." Independent Claim 21 recites logic operable to "establish a plurality of correlithm objects of a space, the space comprising an N-dimensional space", "a correlithm object comprising a point of the space", "impose the plurality correlithm objects on the space to yield a combined point", "compare an imposed correlithm object to the combined point", "recover the imposed correlithm object in accordance with the comparison to impose at least one correlithm object token in a shared resource." Independent Claim 31 recites "means for establishing a plurality of correlithm objects of a space", "the space comprising an N-dimensional space, a correlithm object comprising a point of the space", "means for imposing the plurality correlithm objects on the space to yield a combined point", "means for comparing an imposed correlithm object to the combined point", and "means for recovering the imposed correlithm object in accordance with the comparison." (emphasis added). For at least the reasons indicated with respect to independent Claim 1, Applicants respectfully submit that *Sutherland* fails to disclose or even suggest to impose "the plurality correlithm objects on the space to yield a combined point." Therefore, for at least this reason, Applicants respectfully submit that Claims 11, 21 are also patentable over the *Sutherland* reference.

Claims 2-3, 5, 7-10, 14, 15, 17, 22-23, 25, 27, and 28 depend from independent Claims 1, 11 and 21. For at least the reasons discussed above, independent Claims 1, 11 and 21 are in condition for allowance; therefore, Claims are in condition for allowance; therefore, Claims 2-3, 5, 7-10, 14, 15, 17, 22-23, 25, 27, and 28 are also in condition for allowance. Accordingly, Applicants respectfully request that the rejection of Claims 2-3, 5, 7-10, 14, 15, 17, 22-23, 25, 27, and 28 be withdrawn.

SECTION 103 REJECTIONS

Claims 6, 16, 26, 32, 33, 37, 41 and 45 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Sutherland* in view of U.S. Patent No. 6,173,275 issued to Caid et al. (hereinafter "*Caid*"). Claims 35 and 43 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Sutherland* in view of U.S. Patent No. 5,880,978 issued to Panwar et al. (hereinafter "*Panwar*"). Claim 46 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Sutherland* in view of *Caid* and further in view of *Panwar*. Claims 34, 36, 38-40, 42 and 44 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Sutherland*. Applicants respectfully traverse these rejections.

To establish a *prima facie* case of obviousness under 35 U.S.C. § 103, three basic criteria must be met: First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; second, there must be a reasonable expectation of success; and finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, (Fed. Cir. 1991); M.P.E.P. § 2143. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *Id.* Further, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990); M.P.E.P. § 2143.01. Additionally, not only must there be a suggestion to combine the functional or operational aspects of the combined

references, but also the prior art is required to suggest both the combination of elements and the structure resulting from the combination. *Stiftung v. Renishaw PLC*, 945 F.2d 1173, 1183 (Fed. Cir. 1991). Moreover, where there is no apparent disadvantage present in a particular prior art reference, then generally there can be no motivation to combine the teaching of another reference with the particular prior art reference. *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 (Fed. Cir. 2000).

Of the rejected claims, Claims 32, 33, 37, 41, 45 and 46 are independent. Independent Claim 32 recites, at least "establishing a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space, the plurality of correlithm objects being randomly generated, the plurality of correlithm objects being nearly orthogonal, a correlithm object of the plurality of correlithm objects being utilized as a correlithm object token" and "imposing the plurality correlithm objects on the space to yield a combined point by performing an imposing operation on the plurality of correlithm objects, the plurality correlithm objects imposed to perform at least one of: performing computation using the plurality of correlithm objects, communicating the plurality of correlithm objects, and storing the plurality of correlithm objects" (emphasis added). Applicants respectfully submit that for the reasons indicated above with respect to independent Claims 1, 11, 21 and 31, the proposed combination of references does not disclose, teach or suggest all claims limitations of independent Claim 32.

Independent Claim 33 recites "randomly generating a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space" and "selecting one or more of the plurality of correlithm objects as one or more correlithm object tokens, the one or more correlithm object tokens being nearly orthogonal" (emphasis added). Applicants respectfully submit that the proposed combination of references does not disclose, teach or suggest all claim limitations of independent Claim 33. For example, The examiner appears to rely on *Sutherland* (Col. 20, Lines 35-37) for purportedly teaching "randomly generating a

plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space." (Office Action, Page 22). The portion of *Sutherland* (Col. 20, Lines 35-37) referred to by the Examiner states the following:

One may investigate the error characteristics exhibited on response recall by constructing sets of complex vectors of random orientation (i.e., random statistical testing).

Applicants respectfully submit that, without more, the portion of *Sutherland* referred to by the Examiner does not disclose, teach or suggest "randomly generating a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space" as recited by Claim 33 (emphasis added). Thus, Applicants respectfully submit that neither *Sutherland* nor *Caid*, alone or in combination, discloses, teaches or suggests the limitations of independent Claim 33. Therefore, for at least these reasons, Applicants submit that independent Claim 33 is patentable over the proposed combination of *Sutherland* and *Caid*.

Independent Claim 37 recites, at least "a processor coupled to the memory and operable to: randomly generate a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space" and "select one or more of the plurality of correlithm objects as one or more correlithm object tokens, the one or more correlithm object tokens being nearly orthogonal" (emphasis added). Independent Claim 41 recites, at least "randomly generat[ing] a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space" and "select[ing] one or more of the plurality of correlithm objects as one or more correlithm object tokens, the one or more correlithm object tokens being nearly orthogonal" (emphasis added). Independent Claim 45 recites, at least "means for randomly generating a plurality of correlithm objects of a space, the space comprising an N-dimensional space, a correlithm object comprising a point of the space" and "means for selecting one or more of the plurality of correlithm objects as one or more correlithm object tokens, the one or more correlithm object tokens being nearly orthogonal" (emphasis added).

Independent Claim 46 recites, at least "randomly generating a plurality of correlithm objects of a space, the space comprising an N-dimensional space", "a correlithm object comprising a point of the space", the plurality of correlithm objects generated by randomly selecting one or more values for one or more entries of the random correlithm object" (emphasis added). For at least the reasons discussed above with respect to independent Claim 33, Applicants respectfully submit that the proposed combination of references does not disclose, teach or suggest all claim limitations of independent Claims 37, 41, 45 or 46. Moreover, neither *Caid* nor *Panwar* appear to remedy at least the deficiencies of *Sutherland* discussed above.

Claims 6, 16, 26, 35 depend respectively from independent Claims 1, 11, 33. For at least the reasons discussed above, independent Claims 1, 11 and 33 are in condition for allowance; therefore, Claims 6, 16, 26 and 35 that depend respectively therefrom are also in condition for allowance. Accordingly, Applicants respectfully request that the rejection of Claims 6, 16, 26, 35 be withdrawn.

CLAIM OBJECTIONS

The Examiner objected to Claims 4, 13, 18-20, 24, 29 and 30 as being dependent on a rejected base claim. Applicants thank the Examiner for indicating that Claims 4, 13, 18-20, 24, 29 and 30 would be allowable if rewritten in independent form. Claims 4, 13, 18-20, 24, 29 and 30 depend from independent Claim 1, 11 and 21. For at least the reasons discussed above, Claim 1, 11 and 21 are allowable. Therefore Claims 4, 13, 18-20, 24, 29 and 30 that depend from Claim 1, 11 and 21 are also allowable. Accordingly, Applicants respectfully request that the objections to Claims 4, 13, 18-20, 24, 29 and 30 be withdrawn.

CONCLUSION

Applicants have made an earnest attempt to place this case in condition for immediate allowance. For the foregoing reasons and for other reasons clearly apparent, Applicants respectfully request reconsideration and full allowance of all pending claims.

A Petition for Extension of Time under 37 C.F.R. § 1.17(a)(1) for a three (3) month extension is enclosed hereto. Applicants enclose herewith a check in the amount of \$510.00 to cover the cost for obtaining the small entity extension of time. If, however, Applicants have miscalculated the fee due with this response or overlooked the need for any other fee, the Commissioner is hereby authorized to charge any fees or credit any overpayment associated with this response to Deposit Account No. 13-4900 of Munsch Hardt Kopf & Harr, P.C.

Respectfully submitted,

By: 

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